



COUNTY OF LOS ANGELES - DEPARTMENT OF PUBLIC WORKS
BUILDING AND SAFETY DIVISION - DRAINAGE AND GRADING SECTION
BUILDING PLAN DRAINAGE REVIEW
(Los Angeles County Building Code, Los Angeles County Residential Code, &
Los Angeles County Green Building Code)

_____ SITE ADDRESS	_____ CITY/LOCATION	_____ OFFICE	_____ BUILDING PERMIT APPLICATION NO.
_____ DESIGN ENGINEER / APPLICANT			(_____)_____ TELEPHONE NO.
_____ OWNER			(_____)_____ TELEPHONE NO.
_____ PLAN CHECKER			_____ ENTRY DATE
_____ REVIEW DATE	_____ PROJECT DESCRIPTION / NAME		

- APPROVED.** Finish Floor shall be _____ inches minimum above the highest natural/finished grade. Comply with additional items checked below. Approval Date: _____.
- PRIOR TO APPROVAL,** resubmit **two (2)** sets of plans with revisions and corrections as circled below. **Return this review sheet and check print for reference.**

A. GENERAL COMMENTS

1. See comments on the returned set of plans. Return both this review sheet and check print with the next submittal.
2. A grading permit is (may be) required. See LACBC Appendix J. See grading permit requirements in Grading Guidelines available at <http://dpw.lacounty.gov/bsd/publications/index.cfm>.
3. An Erosion and Sediment Control Plan (ESCP) is required for this project. See attached ESCP review sheet. Project sites which disturb 1 acre or greater must also file a State Storm Water Pollution Prevention Plan (SWPPP) with the State Regional Water Control Board.
4. Compliance with the L.A. County Low Impact Development (LID) Ordinance is (may be) required. See attached LID comments and LID manual.
5. Any work within the public easement requires an excavation/encroachment permit from Land Development Division, Permit Section, prior to Building Drainage Approval. **See Land Development Referral Form.**
 - a. Obtain approval of road R/W improvements from Land Development, Road Unit, at (626) 458-4921.
 - b. Obtain approval of work impacting a Flood Control District easement from Land Development, Flood Unit at (626) 458-4921.
 - c. Obtain approval of proposed work from CALTRANS at (213) 897-3631.
6. Please post the address at the site for field review. Stake the location of the proposed structure.

B. PLOT / SITE PLAN

1. Provide a plot/site plan showing the location of all proposed structures, property lines, right-of-way lines, easements, and existing / proposed septic systems.
2. Show location and size of all oak trees on site. If plans show removal of or encroachment into the protected zone of oak trees, obtain and provide copy of an Oak Tree Report and Permit.
3. Show access from lot to Public Street, show associated access easements. Show bearings, distances and easement description for access easements. Provide copy of easement documents.
4. Elevate the finish floor 8 inches minimum above natural or finished grade, whichever is higher with no wall openings. Show elevation of floors & adjacent grades on the plan and show elevated floor requirements on foundation details & sections. (LACBCM 2304.12.1.2)
5. Extend the foundation _____ inches below natural grade.
6. Clarify and label on plans any existing structures and drainage devices onsite and what is proposed.
7. Site is within the Coastal Commission Zone. Obtain and provide copy of Coastal Development Permit (CDP) and integrate all conditions of approval into plans.

8. Add the following note(s) as circled to the plans:
 - a. Provisions shall be made for contributory drainage at all times.
 - b. Owner will maintain drainage devices and keep free of debris.
 - c. An excavation/encroachment permit is required for construction and/or discharge of drainage within public road R/W. (County of Los Angeles Construction Division, Caltrans, City of _____).
 - d. No work is allowed within the protected zone of oak tree without an oak tree report and permit.
 - e. Finished floor shall be _____ inches minimum above finished grade.
 - f. Total Proposed Landscape Area _____ Square Feet
 - g. Total Turf Area _____% (Percent of Total Proposed Landscaping)
 - h. Total Drought Tolerant Landscaping Area _____% (Percent of Total Proposed Landscaping)
 - i. Hydrozoning irrigation techniques shall be incorporated into the landscape design.
 - j. This project requires a landscape permit. Prior to final, certification from a licensed Landscape Architect shall be provided to the Building Official. Final certification can be obtained at the following:
<http://dpw.lacounty.gov/bsd/publications/index.cfm>

C. DRAINAGE COMMENTS

1. Refer to the attached Drainage Guidelines for Building Plans and for general drainage requirements.
2. Provide a minimum grade fall of 6 inches within the first 10 feet from foundation wall. Show flow arrows to define drainage pattern around proposed structures. (LACRC R401.3 – See allowable exceptions)
3. The placement of building and structures on or adjacent to slopes steeper than one unit vertical in three units horizontal shall conform to LACRC R403.1.7 & LACBC 1808.7.
4. The site shall be planned and developed to keep surface water from entering the building. The Plot / Site Plan provided does not adequately define site drainage. Construction plans shall indicate how the site grading or drainage system will manage surface water. Provide sufficient existing/proposed contours or ground elevations to define both onsite and offsite drainage pattern.
5. Proposed work alters existing drainage on adjacent property. Recorded and Certified Offsite Drainage Release Covenants are required. Submit draft for review. Covenant information is available at <http://dpw.lacounty.gov/bsd/publications/index.cfm>.
6. Provide for the contributory storm water by constructing interceptor or other approved devices. Show details of all pertinent drainage devices e.g., sizes, elevations, type of material, inlet and outlet structures, energy dissipators.
7. Define roof drainage. Show down spout and location of discharge to ground surface which shall be at least 5 feet from foundations walls or to an approved drainage system. Unless otherwise recommended by a Geotechnical Engineer (LACRC R801.3)
8. Clean-outs are required at all points of closed drains where the grade changes from a steep to a relatively flat slope. Clean-outs must be provided every 50 feet for residential projects.
9. Provide concrete swale behind wall. Provide detail of swale.
10. Provide subdrains for all concrete or masonry foundations that retain earth and enclose habitable or usable spaces located below grade. (LACRC R405.1)
11. Provide waterproofing for walls or portions thereof that retain earth and enclose interior spaces and floors below grade. (LACBC 1805 & LACRC R404, R405 & R406)
12. If there is evidence that the surface water does not readily drain from the building site, the grade in the under-floor space shall be as high as the outside finished grade, unless an approved drainage system is provided. (LACRC R408.6)
13. Provide a hydrology study to verify flow and a complete set of hydraulic calculations to verify pipe size, catch basins sizing, energy dissipator size, and inlet/outlet conditions. Hydrology and hydraulic calculations must be prepared, stamped, and signed by a Registered Civil Engineer. HydroCalc Calculator may be used for Sub Areas less than 40 acre (LACRC R322.1.4.1) (LACBC 1612.3.1) <http://dpw.lacounty.gov/wrd/Publication/index.cfm>
14. The project requires a sump pump to outlet drainage from the site. Submit sump pump sizing calculations along with pump manufacturers design information and rating curves. Plans must show complete details for sump pumps on the plans including pipes, valves, dimensions, material type and size, elevations, cross sections, and construction notes. A separate electrical permit from Building and Safety is required. Calculations must be stamped and signed by a Registered Civil Engineer. (See SUMP Pump Design Guide) <http://dpw.lacounty.gov/bsd/publications/index.cfm>
15. Comply with the approved grading plan for (address shown above) (TR/PM No. _____) dated _____. Maintain approved lot drainage pattern.
16. Drainage plan must identify area of proposed Drought Tolerant Landscaping and Turf Area. Post-construction landscape designs shall comply with all of the following (Title 31, Section 4.106.5):
 - a. Turf areas shall not exceed 25 percent of the total landscaped area.
 - b. Noninvasive drought tolerant plant and tree species appropriate for the climate zone region shall be utilized in at least 75 percent of the total landscaped area. A list of drought tolerant plants may be obtained at <http://planning.lacounty.gov/green>.
17. Non-residential landscape areas greater than 1,000 square feet and residential areas greater than 5,000 square feet require separate water meters or sub-meters (Title 31, Section 5.304.2, Water Code, Section 535, and MWEL0). Show location of proposed water meter(s) or sub-meter(s) on plans.

18. Effective, December 1, 2015 all developments that fall into one of the following categories must obtain a Landscape Permit (Title 23 of California Code of Regulations, Chapter 2.7, Section 490.1 of "Model Water Efficient Landscape Ordinance (MWELo)". See exemptions in in same section for historic sites, ecological or mine reclamation projects , :

New Proposed Landscape 500 square feet or greater

Rehabilitated Landscape 2500 square feet or greater

- a. Specify both here and on the plans: The total proposed landscape area is _____ square feet.
- b. Submit Landscape Plans to Land Development Division for review and approval. Landscape Plans must be approved, and a Landscape Permit issued prior to Rough Grade approval. Land Development Division is located at 900 S. Fremont Ave 3rd Floor, Alhambra, CA 91803. Additional information on requirements for Landscaping Permits can be obtained from Land Development Division at (626) 458-4921. Fees for Plan Check and Permit Inspection are required.
- c. Add the following note to plans: "Landscape plans in compliance with the "Model Water Efficient Landscape Ordinance" Title 23, Chapter 2.7 of California Code of Regulations (AB 1881) must be submitted to the Department of Public Works, Land Development Division. (900 S. Fremont Ave, Alhambra - 3RD Floor, CA 91803 (626) 458-4921). To obtain Landscape permit approved plans and Water Purveyor acknowledgment form must be submitted to the local Building and Safety office."
- d. The following statement shall be added to plans and must be signed by the consultant civil engineer or licensed plan preparer:

I have complied with the criteria of MWELo and applied the requirements accordingly for the efficient use of water in the grading design plan.

Name and Signed: _____

Title: _____

- e. Projects having landscaping equal to or less than 2500 square feet and are proposing rainwater storage or graywater use for irrigation is subject only to Appendix D Section (5) of MWELo. Submit landscape plans to Land Development Division as directed in 81 b. Consult LA County Public Health for additional requirements <https://dpw.lacounty.gov/wwd/web/Documents/Graywater%20System.pdf>

19. All Landscaping requires a Smart Irrigation Controller. Automatic irrigation system controllers for landscaping shall be installed at the time of final inspection and shall comply with the following:

- a. Controllers shall be weather or soil moisture based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.
- b. Weather based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture based controllers are not required to have rain sensor input.

Show location where Smart Irrigation Controller is to be installed and label manufacture name and model number.

D. FLOODWAY / WATERCOURSE COMMENTS

1. This property is in a federally designated special flood hazard area: FIRM panel No. _____, Flood Zone _____, Floodway No. _____. The minimum floor elevation shall be _____ per Bench Mark Reference No. _____. An elevation certificate must be filed with the local office of Building and Safety prior to any framing above the foundation. The certificate must be completed by a Registered Civil Engineer or Land Surveyor. LACRC R322 (LACBC 1603.1.7 & 1612.5) See BCM J110.1 Article 1 provided.

Place the following note on the drainage plan:

This site is in a Federally Designated Special Flood Hazard Area. All future buildings, and other structures (including walls and fences) proposed within this Zone must meet requirements of the National Flood Insurance Program (NFIP), Title 44, Section 60.3 and Title 26, Sections 110.1 and 110.2 of the Los Angeles Building Code.

2. Building and structures constructed in whole or in part in flood hazard areas (including A or V zones per FEMA) as established in LACRC Table R301.2(1) or LACBC 1612.3 shall be designed and constructed in accordance with LACRC Section R322 (LACRC R301.2.4) (LACBC 1603.1.7) Provide documentation that is prepared and sealed by a registered design professional.
3. Structures constructed in whole or in part in flood hazard area (FEMA ZONE A or as determined by the Building Official) shall be designated and constructed in accordance with LACRC Sections R322.2.1 through R322.2.3 and LACBC Section 110.1 & 1612.3 through 1612.5.
4. Structures constructed in whole or part in Coastal High Hazard Areas (FEMA Zone V) shall be designed in accordance with LACRC Section R322.3.1 through R322.3.6 or LACBC Section 1612.4 through 1612.5.
5. For garages located in flood hazard areas, floors shall be elevated to or above the design flood elevation as determined by LACRC Section R322 or located below the design flood elevation provided they are at or above grade on at least one side, used solely for parking, building access or storage, meet the requirements of Section R322 and are otherwise constructed in accordance with the code (LACRC R309.3)

6. Provide flood openings in accordance with LACRC Section R322.2.2 for buildings containing wall enclosures under-floor spaces. (LACRC R408.7)
7. Provide documentation for pools located in a designated floodway which demonstrates that the construction of the pool will not increase the design flood elevation at any point within the jurisdiction. For pools located where floodways have not been designated, provide a floodway analysis that demonstrates that the proposed pool will not increase the design flood elevation more than 1 foot at any point within the jurisdiction. A recorded covenant acknowledging the pool is subject to flooding and debris flows is required. See example provided.
8. For other than Residential buildings complying with the 2014 LACRC, buildings and structures in a flood hazard area shall provide the finished ground level of an under-floor space such as a crawl space equal to or higher than the outside finished ground level on at least one side. (LACBC1805.1.2.1)
9. The proposed structure is located within a flood hazard area. Relocate structure or remove the flood hazard. Plans showing provisions for removing the flood hazard must be prepared by a Registered Civil Engineer. Provide hydrology study and hydraulic calculations which demonstrate site is free of flood hazard. (LACRC R322.1.4.1) (LACBC 1612.3.1)

E. ADDITIONAL COMMENTS

Date: _____ Reviewed by: _____ Phone: _____
 REGIONAL DRAINAGE & GRADING ENGINEER

DRAINAGE GUIDELINES FOR PREPARATION OF BUILDING PLANS

Building plans are reviewed for compliance with Sections of the Los Angeles County Building Code (LACBC), Los Angeles County Residential Code (LACRC), Los Angeles County Green Building Code (LACGBC) and other County ordinances. These laws mandate that a building permit not be issued unless the structure is adequately protected from flood hazard and/or inundation. Furthermore, no structure may impede the flow of a naturally occurring watercourse. The following information is provided to assist the applicant in completing the processing of building plans with respect to drainage.

1. The plan should include pertinent data relating to the site drainage and configuration of the development including:
 - a. Vicinity map with site address and, in remote locations, route and mileage distances from nearest paved street and paved cross street.
 - b. All property lines to scale, or if scale is approximate, give lot line dimensions.
 - c. Location of existing structure(s) and / or easements, if any, and location of proposed structures covered by this permit with dimensions from property line.
 - d. Existing and proposed contours and pertinent elevations including off-site elevations to establish contributory drainage conditions and to show if cut or fill will be required to construct building(s).
 - e. Existing watercourses and drainage paths with arrows, and elevations when needed, to indicate the direction of flow.
 - f. Finished pad and finished floor elevation(s) of proposed structure(s) and the description and location of the applicable benchmark.
 - g. Existing and proposed on-site drainage facilities (paved or unpaved swales, pipes, gutters, down drains, velocity reducers, etc.) and pertinent off-site drainage facilities. Indicate how the site grading or drainage system will manage surface water.
 - h. Provide a minimum grade fall of 6 inches within the first 10 feet from foundation wall. (R401.3 – See allowable exceptions)
2. For minor drainage contributing to the site flowing in a uniform “sheet flow” pattern, a common solution is to elevate the floors a sufficient distance (8 inches minimum) above the finish grade to keep storm waters out of the structure(s). (See BCM 2304.11.2 Article1)
3. If elevation of the floors is not practical, removal of the sheet flow is required by the construction of adequate drainage devices. Complete details for these devices must be shown on the plans. These drainage devices shall not alter the existing drainage pattern on adjacent properties without the permission of all the affected property owners.
4. If the applicant plans to build adjacent to a watercourse, in a flood plain, or adjacent to any flood hazard, a licensed Civil Engineer must be retained to prepare engineered plans for removing the hazard. A separate hydrology study is generally required to properly evaluate the potential flood hazard as well as size any mitigating drainage facilities. (LACRC R322.1.4.1) (LACBC 1612.3.1)
5. Structures which are proposed within the boundaries of any County adopted floodway and/or in a Federal Emergency Management Agency (FEMA) flood zone must comply with the National Flood Insurance Program. Principal requirements include mandatory purchase of flood insurance as a condition of obtaining loans from a federally supervised lending institution and maintaining the lowest floor elevation for future construction above the 100-year flood level. However, the Federal requirements are typically a minimum and more restrictive County requirements often apply. LACRC Table R301.2(1) (LACBC 1603.1.7 & 1612.5)
6. Approvals may be required from other agencies including but not limited to the U.S. Army Corps of Engineers, California Department of Transportation, and the State Department of Fish and Wildlife. All approvals are required prior to commencing work within the governing agencies rights of way or jurisdiction. Approval may be required prior to Building Plan approval.
7. If the proposed development unavoidably changes the drainage conditions on adjacent property, off-site improvements and/or drainage acceptance covenant will be required. Covenants must be signed by affected owner(s), notarized, and recorded prior to plan approval.

LOW IMPACT DEVELOPMENT (LID) Requirements

All development must comply with the County of Los Angeles' Title 12, Chapter 12.84 (LID).

LID standards are intended to distribute stormwater and urban runoff across developed sites to help reduce adverse water quality impacts and replenish groundwater supplies. The LID Manual is available at the following link: <http://dpw.lacounty.gov/lid/web/>

Under the NPDES permit (LACBC Section 106.4.3) and the County of Los Angeles LID ordinance, priority projects are required to prohibit the discharge of pollutants from property developments. Preventing these pollutants from entering stormwater discharge system will be accomplished by requiring the installation and maintenance of post-construction treatment controls. (Best Management Practices (BMPs))

The development falls within one of the following categories:

Residential development of 4 units or less:

- New development, hillside development, redevelopment, alterations, or additions which alter 50% or more of impervious surfaces, entire site shall meet LID requirements.
1. **Residential development of 4 units or less** must implement a minimum of two LID Best Management Practice (BMP) alternatives as indicated in Section 3.2 and Appendix E – Stormwater Quality Control Measure Fact Sheets of the LID Manual. Plans must show complete construction details, materials, manufacturer, model number, dimensions, location, structures, slopes, construction notes, specifications, cross sections, elevations, and setbacks from property lines needed to construct proposed LID BMPs. BMPs should be designed so as not to adversely impact building foundations, pavement, slope stability, or an adjacent property. For hillside properties all catch basins and inlets that discharge into an existing or proposed storm drains must be labeled to discourage illegal dumping of pollutants. Stencils are available at your local Building and Safety office.
- a. Permeable Porous Pavement or other impervious surfaces (at least 50% of pavement on lot shall be porous)
 - Show detail of placement, base, geotextile, subgrade, and soil preparation per manufacturer's specifications. The required soils report must address percolation and manufacturer's recommendations and guidelines.
 - H-20 loading is required for Fire Department access.
 - A minimum of 30" deep impervious liner or edge restraint is required within 5' of public right of way, property lines, and structures unless otherwise recommended by a soils engineer.
 - b. Downspout routing
 - Cistern/rain barrel
 - Show location of cistern/rain barrels. Rain barrels should be designed to store 200 gallons and be located such that roof run-off is equally distributed. Rain gutters & downspouts shall be shown on plans.
 - Plans shall show hose bibs or pump systems for discharge and watering of landscaping. (Note: A separate electrical permit is required for pump systems).
 - A plumbing permit is required for backflow prevention devices when the discharge system is tied into a landscaping irrigation system served by a potable water source.
 - H-20 loading is required for underground cisterns located in an area subject to traffic conditions.
 - Plans should include manufacturer specifications and notes for rain barrels. See provided guidelines.
 - Rain garden/Stormwater Planter
 - Surface area of flow through type planter box shall be designed and sized to treat 200 gallons. Planter must have a 18" minimum top soil layer and 12" minimum gravel layer.
 - The infiltration type planter box shall be designed to infiltrate 200 gallons over a 48 hour period.
 - c. Divert Runoff/Disconnect Impervious Surfaces (Hillsides \geq 25% slope must comply with this requirement)
 - Show driveway, roof, and other impervious surfaces to drain toward pervious landscaped areas. The ratio of impervious to pervious area shall be no less than 2:1. This ratio must be identified on plans for each affected area. A minimum of 90% of the untreated impervious area shall be routed toward vegetated areas or water quality BMPs.
 - d. Dry well
 - Show details including the following: location, cross section details, liner materials, subbase, and all manufacturer's specifications and/or recommendations from soils engineer.
 - The required soils report shall address dry well and manufacturer's specification and requirements.
 - The system should be designed to store and infiltrate a minimum of 200 gallons of stormwater within a 48 hour period.
 - Provide calculations to determine the infiltration volume for sizing of well and determine time of infiltration to percolate 200 gallons.
 - A filter or sediment control is required to filter water entering the dry well.
 - Drywells that are deeper than their widest dimension are defined by the EPA as Class V injection wells, and are subject to inventory requirements under the Safe Drinking Water Act and must be registered at the following link with the EPA as injection wells. <http://www.epa.gov/region09/water/groundwater/injection-wells-register.html>. If this type of dry well is proposed, provide copy of registration.

- e. Landscaping and landscape irrigation
 - Show a minimum of two 15 gallon trees to be planted and maintained. Trees shall be located near impervious surfaces (10 foot maximum distance). One of the trees may be on the drought-tolerant plant list as required under the County's Green Building Ordinance (http://planning.lacounty.gov/assets/upl/project/green_drought-tolerant-garden.pdf). In Very High Fire Hazard Severity Zones, applicant should verify compliance with Fire Department's requirements.
 - a. Install Smart Irrigation Controllers. (see Drainage Comment 19 for requirements)
- f. Green Roof
 - Show area of green roof on site plan.
 - Structural calculations for design of green roof will be required at time of building plan submittal.
 - Fire Department approval will be required as part of building plan check.

Non-residential Developments (Commercial or Industrial) must comply with LID as follows:

2. The following is a list of Designated Projects for new development and redevelopment activities that require compliance with LA County's LID ordinance. (See LID manual for additional information)

- All development projects equal to 1 acre or greater of disturbed area and adding more than 10,000 square feet of impervious surface area
- Residential new or redeveloped projects that creates, adds, or replaces $\geq 10,000$ square feet of impervious surface area.
- Industrial parks 10,000 square feet or more of surface area
- Commercial malls 10,000 square feet or more surface area
- Retail gasoline outlets 5,000 square feet or more of surface area
- Restaurants (SIC 5812) 5,000 square feet or more of surface area
- Parking lots 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces
- Street and road construction of 10,000 square feet or more of impervious surface area
- Automotive service facilities with 5,000 square feet or more of surface area
- Projects located in or directly adjacent to, or discharging directly to a Significant Ecological Area (SEA), where the development will discharge storm water runoff that is likely to impact a sensitive biological species or habitat; and Create 2,500 square feet or more of impervious surface area
- Redevelopment projects identified below*:
 - o Land-disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area
 - o Development which alters less than 50% of impervious surfaces. Only proposed re-development needs to meet NPDES requirements.
 - o Development which alters 50% or more of impervious surfaces. Entire site shall meet NPDES requirements.

*Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

REQUIREMENTS:

- a. New Development and Re-Development Projects must control runoff through infiltration, bioretention, and/or rainfall harvest and use. Project must retain onsite the Stormwater Quality Design Volume (SWQDV) as defined by the greater of the following:
 - The 0.75-inch, 24 hour rain event or
 - The 85th percentile, 24-hour rain event, as determined from the Los Angeles County 85th percentile precipitation isohyetal map (www.dpw.lacounty.gov/wrd/hydrologygis) ,.
- b. Bioretention and biofiltration systems shall meet the design specifications provided in Appendix E of LA County's LID manual. (available at <http://dpw.lacounty.gov/idd/web/>). Biofiltration systems shall be entirely open-bottom.
- c. When evaluating the potential for onsite retention, each projects must consider the maximum potential for evapotranspiration from green roofs and rainfall harvest and reuse for both indoor and outdoor use.
- d. To demonstrate technical infeasibility, it must be shown that a project site cannot reliably retain 100 percent of the SWQDV onsite. Technical infeasibility may result from the following:
 - i. The infiltration rate of saturated in-situ soils less than 0.3 inch per hour.
 - ii. Seasonal high ground water is within 5 to 10 feet of the surface.
 - iii. Locations within 100 feet of a ground water well used for drinking water.
 - iv. Brownfield development sites where infiltration poses a risk of pollutant mobilization.
 - v. Locations with potential geotechnical hazards.

- e. When technical infeasibility has been demonstrated the site must biofiltrate using the following equation for volume required:
- $$Bv = 1.5 * [SWQDv - Rv]$$
- Where: Bv = Biofiltration volume
 SWQDv = Stormwater runoff as defined in 85 A
 Rv = Volume reliably retained onsite (amount infiltrated)

Show volumes and flow rates on plans as applicable.

Note: For additional alternative compliance measures see Regional Water Quality Control Board Order No. R4-2012-0175 section VI.D.7.c.iii (http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/index.shtml)

- f. Project sites that outlet to natural drainage systems that are subject to hydromodification shall be in compliance with LA County's LID manual, Section 8 (available at <http://dpw.lacounty.gov/idd/web/>).
- g. The plans must show complete construction details, materials, manufacturer, model number, dimensions, location, structures, slopes, construction notes, specifications, cross sections, elevations, GPS x-y coordinates for each BMP, and setbacks from property lines needed to construct proposed LID BMPs. BMPs should be designed as not to adversely impact building foundations, pavement, slope stability, or an adjacent property.
- h. Clearly show driveway/access road drainage and provide BMPs for treatment of driveway flows. Provide elevations, cross sections, or slopes as applicable.
- i. Submit and obtain approval from Environmental Programs Division, Industrial Waste Unit. An annual operating permit may be required. Environmental Programs Division (EPD), Industrial Waste Unit - 900 S. Fremont, Alhambra, Annex Building, 3rd floor, (626) 458-3517. Please contact EPD for required fees and minimum submittal requirements. Please note: prior to obtaining approval from EPD the location and the design flows for all BMPs must be shown on plans and approved by Building and Safety. (This may apply to non-residential projects that propose proprietary filters, drywells, or hydrodynamic separators)
- j. Pre-treatment BMPs are required.

3. Non-Designated Projects.

Non-residential development (Commercial, Industrial) or a residential development consisting of 5 or more residential units:

- Development which alters less than 50% of impervious surfaces. Only proposed new impervious areas needs to meet LID requirements.
- Development which alters 50% or more of impervious surfaces. Entire site shall meet LID requirements.

- A. Projects must comply with the following: 1) the Delta Stormwater Quality Design Volume (Δ SWQDv), the difference in the volume of runoff between undeveloped (1% impervious surfaces) and post-developed condition using the water quality design storm event shall be infiltrated at the lot level, If Δ SWQDv cannot be infiltrated due to geotechnical or technical feasibility as indicated in Section 7 of the County's LID Manual; onsite storage or other water conservation requirements must be implemented.
- B. Provide calculations for sizing of the proposed BMP's. Calculations must consider Δ SWQDv, percolation rate, and geotechnical considerations.
- C. Plans must show complete construction details, materials, manufacturer, model number, dimensions, location, structures, slopes, construction notes, specifications, cross sections, elevations, GPS x and y coordinates for each BMP, and setbacks from property lines needed to construct proposed LID BMPs. BMPs should be designed as not to adversely impact building foundations, pavement, slope stability, or an adjacent property.
- D. Hydrology Calculations to determine the increase in volume due to development is required. For smaller sites, the County's Hydrocalc Program may be used for determining Pre- and Post-construction volumes. See Section 6 of County's LID Manual.
 - A drain system is required for all infiltration basins. Drain systems shall discharge to an approved location and must be shown on site drainage or grading plans. Calculations for sizing of the infiltration basins are required.

- 4. For LID compliance, all catch basins and inlets that discharge into an existing or proposed storm drain must be labeled to discourage illegal dumping of pollutants. Stencils are available at your local Building and Safety office.
- 5. All infiltration basins, dry wells, or planters must comply with the following setbacks

Infiltration Facility Setbacks*	
<u>Setback from</u>	<u>Distance in feet</u>
Property lines & Public Right of Way	5' minimum
Any Foundation	15' or within a 1:1 plane drawn up from the bottom of foundation
Face of any slope	H/2, 5' minimum (H is height of slope)*
Seasonal high ground water	10' minimum depth to invert
Water wells	100' minimum

INSTRUCTIONS FOR PREPARATION AND RECORDATION OF LID COVENANT AND SUPPORTING DOCUMENTS

1. SUBMIT the following documents to your Plan Checker:
 - a. LID Covenant
 - b. LID Site Diagram on 8 ½ x 11 sheets with X and Y coordinates of LID BMP's (Exhibit 1)
 - c. LID Maintenance Guidelines (Exhibit 2)

Submit these documents to your plan checker for approval as to form prior to signing and notarizing. Plan checker will notify applicant if documents are ready for recordation or if corrections are needed.

2. COVENANTS MUST BE SIGNED, NOTARIZED, AND RECORDED. Sign, notarize and record documents after notification that the documents are ready to record.

Note: RECORDATION is the responsibility of the applicant. The main Recorder's Office is located at 12400 Imperial Highway, Norwalk, CA 90650. Additional branch offices for recording documents are available.

Information for the County's Recorder's office can be obtained on the internet at <http://www.lavote.net> or by calling (562) 462-2125 for more information.

Applicant must provide copy of the recorded LID Covenant and Exhibits stamped by the recorder's office. A conformed copy will be stamped by the County Recorder, if necessary, for immediate plan approval. (It is recommended applicants obtain a copy of the recorded document.) Otherwise, the original should be returned to the designated section by the County Recorder in approximately three (3) weeks.

3. For any required forms mentioned below please see:
<http://dpw.lacounty.gov/bsd/publications/index.cfm> (under headings: Drainage and Grading, LID and NPDES)

RECORDING REQUESTED BY
AND MAIL TO:

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
BUILDING AND SAFETY DIVISION
900 S. FREMONT AVENUE, 3RD FLOOR
ALHAMBRA, CA 91803-1331

Space above this line is for Recorder's use

COVENANT AND AGREEMENT
REGARDING THE MAINTENANCE OF LOW IMPACT DEVELOPMENT (LID) &
NATIONAL POLLUTANTS DISCHARGE ELIMINATION SYSTEM (NPDES) BMPs

The undersigned, _____ ("Owner"), hereby certifies that it owns the real property described as follows ("Subject Property"), located in the County of Los Angeles, State of California:

LEGAL DESCRIPTION

ASSESSOR'S ID # _____ TRACT NO. _____ LOT NO. _____

ADDRESS: _____

Owner is aware of the requirements of County of Los Angeles' Green Building Standards Code, Title 31 Section 4.106.4 (LID), and the National Pollutant Discharge Elimination System (NPDES) permit. The following post-construction BMP features have been installed on the Subject Property:

- Porous pavement
- Cistern/rain barrel
- Infiltration trench/pit
- Bioretention or biofiltration
- Rain garden/planter box
- Disconnect impervious surfaces
- Dry Well
- Storage containers
- Landscape and landscape irrigation
- Green roof
- Other _____

The location, including GPS x-y coordinates, and type of each post-construction BMP feature installed on the Subject Property is identified on the site diagram attached hereto as Exhibit 1.

Owner hereby covenants and agrees to maintain the above-described post-construction BMP features in a good and operable condition at all times, and in accordance with the LID/NPDES Maintenance Guidelines, attached hereto as Exhibit 2.

Owner further covenants and agrees that the above-described post-construction BMP features shall not be removed from the Subject Property unless and until they have been replaced with other post-construction BMP features in accordance with County of Los Angeles' Green Building Standards Code, Title 31.

Owner further covenants and agrees to maintain all drainage devices located within his or her property in good condition and operable condition at all times.

Owner further covenants and agrees that if Owner hereafter sells the Subject Property, Owner shall provide printed educational materials to the buyer regarding the post-construction BMP features that are located on the Subject Property, including the type(s) and location(s) of all such features, and instructions for properly maintaining all such features.

Owner makes this Covenant and Agreement on behalf of itself and its successors and assigns. This Covenant and Agreement shall run with the Subject Property and shall be binding upon Owner, future owners, and their heirs, successors and assignees, and shall continue in effect until the release of this Covenant and Agreement by the County of Los Angeles, in its sole discretion.

Owner(s):

By: _____ Date: _____

By: _____ Date: _____

A notary public or other officer completing the attached certificate verifies only the identity of the individual who signed the document to which the certificate is attached, and not the truthfulness, accuracy, or validity of that document.

(PLEASE ATTACH NOTARY)

FOR DEPARTMENT USE ONLY:

MUST BE APPROVED BY COUNTY OF LOS ANGELES BUILDING AND SAFETY DIVISION PRIOR TO RECORDING.

APPROVED BY: _____
(Print Name)

(Signature)

Date _____